



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/024,536	12/21/2001	Mitsue Miyazaki	2382-22	2123

23117 7590 03/11/2005

NIXON & VANDERHYE, PC  
1100 N GLEBE ROAD  
8TH FLOOR  
ARLINGTON, VA 22201-4714

EXAMINER

SHEARIN, ANDREW J

ART UNIT PAPER NUMBER

3737

DATE MAILED: 03/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SN

<b>Office Action Summary</b>	<b>Application No.</b> 10/024,536	<b>Applicant(s)</b> MIYAZAKI, MITSUE	
	<b>Examiner</b> Andrew Shearin	<b>Art Unit</b> 3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 December 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☒ Claim(s) 1-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/11/02</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 2-3, and 19 are objected to because of the following informalities:  
brackets should not be used to designate time units. Appropriate correction is required.
2. Claims 1-19 are objected to because of the following informalities: 'a short time' is an ambiguous phrase that does not limit the claims. Appropriate correction is required.
3. Claims 4-5 are objected to because of the following informalities: 'a conventional MT pulse' is an ambiguous phrase that does not limit the claim. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Hu et al. (5250898). Hu et al. '898 discloses a magnetic resonance imaging system comprising: MT-pulse applying means for: applying to an object an MT pulse of which is off-resonance to a region to be imaged of the object (Hu et al. '898 col. 2, lines 34-37); spoiler applying means for applying a gradient spoiler pulse to the object after the MT pulse is applied (Hu et al. '898 col. 3, lines 3-7); scanning means for performing a scan to acquire an echo signal from the region to be imaged after the gradient spoiler pulse is applied, wherein a duration of the MT pulse is set to a short time (Hu et al. '898 col. 2, line 64 – col. 3, line 2); wherein the duration of the MT pulse is less than 6 msec (Hu et al. '898 col. 9, lines 59-61); wherein the MT pulse is, in a waveform area, approximately equal to a conventional MT pulse of which duration is longer (Hu et al. '898 col. 5, lines 19-25 wherein a power that is changeable can be less than an ambiguous value); wherein the MT pulse is, in a waveform area, less than a conventional MT pulse of which duration is longer (Hu et al. '898 col. 10, lines 58-62); wherein the scanning means is configured to two-dimensionally scan the region to be imaged on the basis of multi-slice imaging (Hu et al. '898 See Figures 9-10); wherein the scanning means is configured to three-dimensionally scan the region to be imaged on the basis of multi-slice imaging (Hu et al. '898 col. 3, lines 59-64 wherein a system that operates with multiple slices and x,y, and z gradients fields is fully capable of imaging three dimensions); further comprising region selecting means configured to apply, concurrently with the application of the MT pulse, a gradient pulse to select an applied position of the MT pulse to the object so that the applied position of the MT

pulse is different from the region to be imaged (Hu et al. '898 col. 9, lines 56-59); wherein a duration of the MT pulse is set to a short time during which relaxation of a spin-lattice magnetization of a magnetic spin of the object is hardly completed (Hu et al. '898 col. 9, lines 43-58 wherein a system that discloses 'short' pulses does not let the magnetic spin of the spin-lattice magnetization become complete); wherein acquiring an echo signal on the basis of magnetic resonance phenomena of at least two types of nuclear pools in an object, the two types of nuclear pools being mutually coupled through a coupling relationship based on at least one of a chemical exchange phenomenon and a cross relaxation phenomenon (Hu et al. '898 col. 2, lines 12-28); wherein the two types of nuclear pools consist of a nuclear pool of free water and a nuclear pool of a macromolecule (Hu et al. '898 col. 2, lines 12-28 water was known in the art as a high T2 substance well used in MTC at the time the invention was made as was the term free pools).

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Shearin whose telephone number is (571)272-4744. The examiner can normally be reached on 7:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on (571)272-4956. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3737

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AS

AS

  
BRIAN L. CASLER  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3700